

*Replaced by Art. 34*CLAIMS

1. A rewinding machine for producing logs (L1, L2) of wound web material (N), comprising:
  - winding elements to wind the web material and form said logs;
  - 5 • means to sever the web material upon termination of winding each log (L1, L2);
  - at least a first glue dispenser (31; 31B; 85; 105) to apply a first glue (C2) to a portion of said web material, in proximity to a severing line, along which the web material is severed upon termination of winding a
  - 10 log to form a final free edge and an initial free edge, said first glue glueing the final free edge of the log;  
characterized in that said first glue dispenser comprises a mechanical element (31; 31B; 87; 105) that touches the web material at the end of winding of each log (L1, L2), to transfer said first glue to said web material (N).
- 15 2. Rewinding machine as claimed in claim 1, characterized in that it is a peripheral winding machine comprising a winding cradle (11) with at least a first winding element (1) around which said web material (N) is fed.
3. Rewinding machine as claimed in claim 1 or 2, characterized in that said mechanical element is a rotating element.
- 20 4. Rewinding machine as claimed in claim 2 or 3, characterized in that said first glue dispenser applies said first glue to a portion of web material wound around said first winding element (1).
5. Rewinding machine as claimed in one or more of the previous claims, characterized in that said mechanical element has at least one pad (41) suitable to pick up said first glue and to touch said web material, to transfer to it at least part of the glue picked up.
- 25 6. Rewinding machine as claimed in at least claim 2, characterized in that it comprises a feeder (30; 83; 101) to feed tubular winding cores (A1, A2, A3, A4; A5), around which said logs are wound, towards said winding cradle.
- 30 7. Rewinding machine as claimed in claim 6, characterized in that it comprises a second gluing unit (29) to apply a second glue to said tubular winding cores.
8. Rewinding machine as claimed in claim 6 or 7, characterized in

that said mechanical element (105) is associated with said feeder (101).

9. Rewinding machine as claimed in claim 8, characterized in that said mechanical element is integral with said feeder (101).

10. Rewinding machine as claimed in claim 9, characterized in that 5 said feeder comprises an oscillating or rotating seat (101A), with which said mechanical element (105) is integral.

11. Rewinding machine as claimed in one or more of claims 1 to 7, characterized in that: said means to sever the web material upon termination of winding each log (L1, L2) comprise a rotating severing element (31), co-operating with said first winding element (1); and in that said mechanical element (31; 31B) of the first glue dispenser is associated with said severing element (31).

12. Rewinding machine as claimed in claim 11, characterized in that said severing element (31) and said mechanical element (31; 31B) of the 15 first glue dispenser are integral with each other.

13. Rewinding machine as claimed in claim 11 or 12, characterized in that when said severing element (31) is in contact with said web material it has a peripheral speed differing in respect of said first winding element (1).

14. Rewinding machine as claimed in one or more of claims 1 to 7, 20 characterized in that said mechanical element (31B; 87; 105) of the first glue dispenser is constituted by an element rotating around an axis of rotation (31A; 89; 103) and cooperating with said first winding element (1), the web material being pinched between said first winding element (1) and said rotating element, when said rotating element is in contact with said web material 25 (N) having a peripheral speed different from the peripheral speed of said first winding element (1).

15. Rewinding machine as claimed in at least claim 6, characterized by a rolling surface (15) defining with said first winding element (1) a channel (19) to feed said winding cores (A1-A4); and wherein said winding cores are 30 fed into said channel and made to roll inside it before the web material is severed.

16. Rewinding machine as claimed in one or more of the previous claims, characterized in that said first glue dispenser applies said first glue along longitudinal bands, continuous or broken, on said web material.

17. Rewinding machine as claimed in one or more of the previous claims, characterized in that: it comprises a feeder to feed tubular winding cores towards a winding cradle, around which said logs are wound; in that said mechanical element comprises a winding core, to which a glue has been applied, and around which a log of web material is subsequently wound; and in that said means to sever the web material and said feeder are designed and arranged to cause severing of the web material before said core transfers the glue to said web material to close the final edge; said glue being applied to said core according to at least a longitudinal band.

10 18. Rewinding machine to produce logs of web material wound on a winding core, comprising:

- winding elements to wind the web material and form said logs;
- a severing element to sever the web material upon termination of winding each log, to form a final edge of the finished log and an initial edge of a subsequent log;
- a feeder to feed tubular winding cores towards said winding elements;
- at least a first glue dispenser to apply a first glue to said winding cores, according to at least a longitudinal band,
- said feeder and said severing element being disposed and controlled so that upon termination of winding each log, the web material is severed and said longitudinal band of glue applied to said core is brought into contact with said web material after it has been severed, so that at least part of said first glue is transferred to the web material in the vicinity of the final free edge of the finished log, to glue the final free edge of the log.

25 19. Rewinding machine as claimed in claim 18, characterized in that it is a peripheral rewinding machine comprising a winding cradle with at least a first winding element around which said web material is fed.

20. Rewinding machine as claimed in claim 18 or 19, characterized in that the core applies at least a part of said first glue to a portion of web material fed around said first winding element.

30 21. Rewinding machine as claimed in claims 18, 19 or 20, characterized in that it comprises a second glue dispenser to apply a second glue to said tubular winding cores, to fasten the initial free edge to said cores.

22. Rewinding machine as claimed in one or more of claims 19 to

21, characterized in that: said means to sever the web material upon termination of winding each log comprise a rotating severing element, cooperating with said first winding element.

23. Rewinding machine as claimed in one or more of claims 19 to 5 22, characterized in that when said severing element is in contact with said web material, it has a peripheral speed differing in respect of the peripheral speed of said first winding element.

24. Rewinding machine as claimed in at least claim 19, characterized by a rolling surface defining with said first winding element a channel 10 with an inlet for inserting said winding cores; and in that said winding cores are fed into said channel and made to roll inside it, to bring said first glue in contact with the web material fed around said winding element.

25. Machine as claimed in claim 24, characterized in that said first winding element has a suction portion, upstream of the inlet of said channel, 15 to hold the initial edge and the final edge on the surface of said winding element, said severing element being disposed to act upstream of said channel.

26. Method for producing logs of wound web material, comprising the phases of:

- winding a quantity of web material (N) to form a first log (L1) in a winding area;
- upon termination of winding said first log (L1), severing the web material to create a final edge (Lf) of the first log and an initial edge (Li) to form a second log;
- applying a first glue to a portion of the web material destined to remain wound on the first log, in proximity to the final free edge, which is glued to the first log upon termination of winding,

characterized in that said first glue is applied to the web material by a mechanical element that comes into contact with said web material.

27. Method as claimed in claim 26, characterized in that said logs are 30 wound around tubular winding cores (A1-A4).

Method as claimed in claim 27, characterized in that a second glue is applied to said tubular winding cores to fasten the initial free edge of the web material.

28. Method as claimed in claim 26, 27 or 28, characterized in that said

mechanical element applies said first glue with a rotatory movement.

29. Method as claimed in claim 28 or 29, characterized in that said first glue is applied by means of a feeder of said tubular cores, during insertion of a core towards said winding area.

5 30. Method as claimed in one or more of claims 26 to 29, characterized in that said first glue is applied by means of a severing element that also severs the web material upon termination of winding each log.

31. Method as claimed in one or more of claims 26 to 31, characterized in that said first glue is applied along a longitudinal line.

10 32. Method as claimed in one or more of claims 26 to 32, characterized in that said logs are wound with a peripheral winding system.

33. Method as claimed in one or more of claims 26 to 33, characterized in that said first glue is applied to the web material before severing of the web material:

15 34. Method as claimed in one or more of claims 26 to 34, characterized in that said first glue is a liquid or semi-liquid glue.

35. Method as claimed in one or more of claims 26 to 35, characterized in that said first glue is a non-liquid glue, such as a strip of double-sided adhesive material.

20 36. Method as claimed in one or more of claims 26 to 36, characterized by providing a feeder for tubular cores to feed winding cores around which said logs are formed towards a winding cradle; in that said first glue is applied, according to at least an essentially longitudinal band, to said cores and transferred at least partially to the web material, said web material being severed before transfer of the first glue to said web material to close the final edge.

25 37. Method to produce logs of wound web material, comprising the phases of:

- 30 ➤ winding a quantity of web material around a first winding core to form a first log in a winding area;
- upon termination of winding said first log, severing the web material to produce a final edge of the first log and an initial edge to form a second log;
- applying a first glue to a second winding core, said glue being applied

according to at least a longitudinal band essentially parallel to the axis of said core;

- after severing of said web material, bringing said longitudinal band of glue applied to the second core into contact with said web material;
- 5   ➤ transferring at least part of the first glue from said core to said web material, in proximity or at the level of said final free edge, to close the final free edge of the first log.

39. Method as claimed in claim 38, wherein said initial edge is made to adhere to said second core by means of said first glue.

10   40. Method as claimed in claim 38, characterized in that a second glue is applied to said tubular winding cores to fasten the initial free edge of the web material.

15   41. Method as claimed in one or more of claims 38 to 40, characterized in that said logs are wound with a peripheral winding system comprising at least a first winding element.

42. Method as claimed in one or more of claims 38 to 41, characterized in that said first glue is a liquid or semi-liquid glue.

20   43. Method as claimed in one or more of claims 38 to 42, characterized by providing a first winding element and a rolling surface defining, with said first winding element, a channel to introduce said cores, with an inlet inside which said cores are fed, and in that said web material is severed upstream of said inlet.

25   44. Method as claimed in claim 43, characterized in that the final edge and the initial edge of said web material after severing are held on the surface of said winding element through suction, to convey said final edge and said initial edge towards the inlet of said channel.

30   45. Method as claimed in one or more of claims 38 to 44, characterized in that the web material is severed by pinching said web material between a first winding element around which it is fed and a severing element, moving at a speed differing from the speed of the winding element.